Application No.: 09479,483
Docket No.: TKHR4580

SPECIFICATION AMENDMENT

Please amend the paragraph beginning at line 16 on page 6 as follow:

Thereafter, a second protective layer etching process is conducted to define the positions of protective layer in the peripheral circuit area 104 and the pad spacers. Referring to Figure 1E, the positions for the protective layer 122 of the peripheral circuit area 104 and the pad spacers 118b and 120 are formed simply by defining the silicon nitride layer 116 and the oxide layer 114 using the photolithography technique. The pixel cell area 102 mandates a protective layer with a greater ~~transparency~~ transmittance. The combination of the silicon nitride layer 116 and the oxide layer 114, however, does not have a high ~~transparency~~ transmittance. The exposed silicon nitride layer 116 and the oxide layer 114 are thus removed in the etching process using the pixel cells 106 as an etch stop. A majority of the pixel cells 106 are then exposed. The pad spacer 120 of the pixel cell area 102 is also defined in this etching process based on the previously defined oxide layer 118a. On the other hand, the peripheral circuit area 104 must be covered with a protective layer to prevent scratching and moisture penetration. The silicon nitride layer 116b and the oxide layer 114b in the peripheral circuit area 104 are retained as the protective layer 122 for the peripheral circuit area 104, which is completed concurrently in the second protective layer etching process. Furthermore, the peripheral circuit area 104 also needs the formation of a pad spacer. As a result, the peripheral circuit area 104 retains a portion of the oxide layer 118b as a pad spacer during the definition of the oxide layer 118.

Please amend the paragraph beginning at line 11 on page 7 as follow:

The pad spacer 120 of the pixel cell area 102 is formed by the oxide layer 118a, the silicon nitride layer 116a and the oxide layer 114a. The pad spacer 122 of the peripheral circuit area 104 is formed by the oxide layer 118b and the underlying protective layer 122. The area of the oxide layer 118a defined in the pixel cell area 102 cannot be too big, for example, approximately 4 microns x 4 microns, because a pad spacer 120 with an overly big area affects the ~~transparency~~ transmittance and the light blocking effect. Furthermore, the pad spacer 120 of the pixel cell area 102 needs to form above the insulation material 112, which is the intersection of the pixel cells 106. As a result, the arrangement and the dimension of the pixel cells 106 in the pixel cell area 102 determine the dimensions of the pad spacer 120.

D2

Please amend the paragraph beginning at line 7 on page 8 as follow.

A protective layer 124 with a higher ~~transparency~~ transmittance is further formed on the substrate 100 as shown in Figure 1F. The ~~transparency~~ transmittance of the protective layer 124 is high enough for light to transmit through the protective layer 124 to reach the cell pixels 106 and to reflect back. The protective layer 124, for example, is a thin oxide layer or a combination of the silicon nitride layer/oxide layer. The protective layer 124 covers at least the pixel cells 106 in the pixel cell area 102 and serves as a protective layer for the pixel cells 106. The protective layer 124 can also cover other areas in the substrate 100. The thin oxide layer is, for example, a chemical vapor deposited tetra-ethyl-ortho-silicate (TEOS) layer of approximately 500Å thick.

D3

Please amend the paragraph beginning at line 16 on page 8.

Since the ~~transparency~~ transmittance for the thin oxide layer 124 is approximately 85%, covering the pixel cells 106 with the thin oxide layer 124 does not seriously affect the ~~transparency~~ transmittance of the pixel cells 106 when the light reaches the pixel cells 106. The thin oxide layer 124 can also provide an appropriate protection for the pixel cells 106.

D4

Please amend the paragraph beginning at line 20 on page 8 as follow.

The present invention provides a multiple etching steps in forming the multi-layer of the thin films in order to accommodate the different demands of the protective layers in the reflective micro-LCD. For example, the fabrication of a silicon nitride/oxide material is to protect the peripheral circuit area from moisture penetration and from being scratched. For the pixel cell area, which mandates a high ~~transparency~~ transmittance, an oxide material is formed as the protective layer. Furthermore, to facilitate the filling of the liquid crystal, the height of the pad spacers formed are higher. The pad spacers are formed with a structure of oxide material/nitride material/oxide material, wherein the order of the thin films and their thicknesses can vary accordingly.

D5